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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Naoki Oguchi

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EXAMINER

LEE, ANDREW CHUNG CHEUNG

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

06/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/988,958

Applicant(s)

OGUCHI ET AL.

Examiner

Andrew C. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 – 13 are rejected under 35 U.S.C. 112, second paragraph.

Regarding claims 1, 5, and 9, the claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

For instance, referring to claim 1, first paragraph of the main text “generating and multicasting control packets each having set a multicast address predetermined per virtual network in first relaying apparatuses originating a virtual network within the public data communication network”. The claim in current grammatical structure, one with ordinary skill in art will have difficult time to comprehend the whole meaning of the paragraph.

Furthermore, it is not clear, whether

- “who” or “what” generating and multicasting control packets?
- what does “each” mean or refer to?
- Does “each” mean or refer to each of the control packets or each of the first relaying apparatus?
- Is the term “having set” a predicates or does it mean “having a set of”?

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- Does “having set a multicast address predetermined per virtual network” mean “having a set of predetermined multicast address per virtual network”?

Referring to Second paragraph “establishing virtual links to the first relaying apparatuses which are transmitting sources of the control packets upon receipt thereof and returning reply packets through the virtual links in second relaying apparatuses belonging to a multicast address group represented by the multicast address”. Without modification and the paragraph is in its current form, one with ordinary skill in art will have difficult time to comprehend the whole meaning of the paragraph.

For the second paragraph, does the applicant mean “(second relaying apparatuses) upon receipt the control packets and returning reply packets through the virtual links belonging to a multicast address group represented by the multicast address, second relaying apparatuses establishing virtual links to the first relaying apparatuses which are transmitting sources of the control packets” ?

The above problems are also present in claims 5 and 9, respectively.

Clarification for the above questions and issues are needed.

3. The dependent claims 2 –4, 6 – 8, 10 – 13 are also rejected for the same reasons.

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Claims 2 –4, 6 – 8, 10 – 13 are rejected under 35 U.S.C. 112, second paragraph because the claims are dependent upon rejected base claims 1, 5, 9, respectively.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 5, 9, 11 are rejected under 35 U.S.C. 102(e) as being anticipated by McCanne (US 6611872 B1).

Regarding claims 1, 5, 9, McCanne discloses the limitation of a virtual network construction method, system, apparatus for a public data communication network (recited “overlay network” correlates to virtual network, “Internet” correlates to public data communication network; Fig. 1, column 2, lines 40 – 49) comprising the steps of: generating and multicasting control packets each having set a multicast address predetermined per virtual network in first relaying apparatuses originating a virtual network within the public data communication network (“utilizes a two-level addressing strategy, where overlay addresses are carried in additional overlay header, and native multicast addresses are

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computed from overlay addresses using a novel hashing scheme...” correlates to generating and multicasting control packets each having set a multicast address predetermined per virtual network in first relaying apparatuses; column 4, lines 54 – 62; column 6, lines 14 – 16, lines 19 – 26; lines 37 – 51), and; establishing virtual links to the first relaying apparatuses which are transmitting sources of the control packets upon receipt thereof and returning reply packets through the virtual links in second relaying apparatuses belonging to the multicast address group represented by the multicast address (column 6, lines 16 – 26, column 7, lines 42 – 53), whereby the virtual links are established between all pairs of virtual relaying structures independently operable per virtual network in the first and the second relaying apparatuses to construct the virtual network that is preliminary associated with the virtual relaying structures (“each transit virtual interface represents a link in the overlay network topology and overlay routers forward packets to each other over these virtual path”, and “overlay routers may overlay addresses onto native group address using a well-defined hash function and the peers that are interested in receiving a certain overlay group” correlates to virtual links are established between all pairs of virtual relaying structures independently operable per virtual network in the first and the second relaying apparatuses to construct the virtual network; column 7, lines 20 – 24, column 12, lines 53 – 59), the virtual relaying structures being provided with receiving virtual interface and belonging to the multicast address group (“a transit virtual interface (TVIF) provides a virtual interconnection between virtually adjacent overlay router”, and “the control channels are effected using a fully connected mesh of

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TCP connections, while the pairwise virtual data channels are effected using a single native multicast group” correlates to the virtual relaying structures being provided with receiving virtual interface and belonging to the multicast address group;column 12, lines 17 – 27, lines 40 – 47).

Regarding claim 11, McCanne discloses the limitation of the relaying apparatus as claimed in claimed further comprising means for generating a routing table for each of a plurality of virtual networks logically independent of one another (“using Multipoint Infrastructure Transport (MINT) protocol, senders can attach named values to an overlay multicast group which is published into and across the overlay network,.....“database” of state” correlates to means for generating a routing table for each of a plurality of virtual networks; column 6, lines 37 – 51), and means for performing a packet relay of each virtual network based on the routing table (“each BGMP domain is configured with one or more blocks of multicast addresses and that BGMP domain advertises these blocks across the BRs using a routing protocol” correlates to means for performing a packet relay of each virtual network based on the routing table; column 17, lines 19 – 43; column 18, lines 24 – 27).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

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be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 6, 10, 3, 7, 12, 4, 8, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCanne (US 6611872 B1) in view of Ylonen et al. (US 6438612 B1).

Regarding claims 2, 6, 10, McCanne discloses the limitation of a virtual network construction method, system, apparatus comprising the steps of generating and multicasting control packets each having set a multicast address predetermined per virtual network in first relaying apparatuses originating a virtual network within a public data communication network (overlay network" as virtual network, "Internet" as public data communication network; column 2, lines 40 – 49).

McCanne does not disclose the virtual network construction method, system, apparatus as claimed in claimed wherein the second relaying apparatuses authenticate the control packets received.

Ylonen et al. disclose a virtual network construction method, system, apparatus wherein the second relaying apparatuses authenticate the control packets received (Abstract, lines 12 – 19; column 7, lines 65 – 67; column 8, lines 1 – 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify McCanne to include the virtual network construction method, system, apparatus as claimed wherein the second relaying

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apparatuses authenticate the control packets received as taught by Ylonen et al. in order to provide secure transmission of data packets in a network comprising virtual routers (as suggested by Ylonen et al., see column 1, lines 8 – 10).

Regarding claims 3, 7, 12, McCanne discloses the limitation of a virtual network construction method, system, apparatus comprising the steps of generating and multicasting control packets each having set a multicast address predetermined per virtual network in first relaying apparatuses originating a virtual network within a public data communication network (overlay network” as virtual network, “Internet” as public data communication network; column 2, lines 40 – 49).

McCanne does not disclose the virtual network construction method, system, apparatus as claimed wherein the virtual links comprise IP tunnels.

Ylonen et al. discloses a virtual network construction method, system, apparatus wherein the virtual links comprise IP tunnels (column 2, lines 17 – 23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify McCanne to include the virtual network construction method, system, apparatus as claimed in claimed wherein the virtual links comprise IP tunnels as taught by Ylonen et al. in order to provide secure transmission of data packets in a network comprising virtual routers (as suggested by Ylonen et al., see column 1, lines 8 – 10).

Regarding claims 4, 8, 13, McCanne discloses the limitation of a virtual network construction method, system, apparatus comprising the steps of generating and multicasting control packets each having set a multicast address predetermined per virtual network in first relaying apparatuses originating a virtual network within a public data communication network (overlay network" as virtual network, "Internet" as public data communication network; column 2, lines 40 – 49).

McCanne does not disclose a virtual network construction method, system, apparatus wherein the virtual links comprise MPLS tunnels.

Ylonen et al. discloses the limitation of the virtual network construction method, system, apparatus as claimed wherein the virtual links comprise MPLS tunnels (column 2, lines 53 – 59).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify McCanne to include the virtual network construction method, system, apparatus as claimed in claimed wherein the virtual links comprise MPLS tunnels as taught by Ylonen et al. in order to provide secure transmission of data packets in a network comprising virtual routers (as suggested by Ylonen et al., see column 1, lines 8 – 10).

Response to Arguments

8. Applicant's arguments filed 3/19/2007 with respect to claims 1 – 13 have been fully considered but they are not persuasive.

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Regarding claim 1, applicant argues reference McCanne does not teach or suggest the limitation of whereby the virtual links are established between all pairs of virtual relaying structures independently operable per virtual network in the first and the second relaying apparatuses to construct the virtual network that is preliminary associated with the virtual relaying, the virtual relaying structures being provided with receiving virtual interface and belonging to the multicast address group.

Examiner contends reference McCanne does teach whereby the virtual links are established between all pairs of virtual relaying structures independently operable per virtual network in the first and the second relaying apparatuses to construct the virtual network that is preliminary associated with the virtual relaying structures, the virtual relaying structures being provided with receiving virtual interface and belonging to the multicast address group.

Examiner interpreted “each transit virtual interface represents a link in the overlay network topology and overlay routers forward packets to each other over these virtual path”, and “overlay routers may overlay addresses onto native group address using a well-defined hash function and the peers that are interested in receiving a certain overlay group” correlating to virtual links are established between all pairs of virtual relaying structures independently operable per virtual network in the first and the second relaying apparatuses to construct the virtual network; see column 7, lines 20 – 24, column 12, lines 53 – 59, Examiner also interpreted “a transit virtual interface (TVIF) provides a virtual interconnection

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between virtually adjacent overlay router”, and “the control channels are effected using a fully connected mesh of TCP connections, while the pairwise virtual data channels are effected using a single native multicast group” correlating to the virtual relaying structures being provided with receiving virtual interface and belonging to the multicast address group; see column 12, lines 17 – 27, lines 40 – 47.

Same arguments are for the claims 5 and 9, respectively.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Morgenstern et al. (US Patent No. 6587467 B1) disclose VC multicast implementation scheme utilizing VP tunneling over public ATM VP switched networks utilizing P2P and P2M connections to provide VC multicast capability to the attached private ATM networks.
- Delancey et al. (US Patent No. 6937574 B1) disclose methods and apparatus for routing packets through a communications network, a respective distinct broadcast address is assigned to each of a plurality of distinct sets of virtual ports. No virtual port belongs to more than one of the distinct sets.

Conclusion

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571) 272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew C. Lee/::<5/24/2007>


6/7/07
WING CHAN
SUPERVISORY PATENT EXAMINER